CURRICULUM VITAE

Ricardo Marques Domingues

Oceanographer currently working as an employee of the Cooperative Institute for Marine and Atmospheric Studies (CIMAS), University of Miami, at the Atlantic Oceanographic and Meteorological Laboratory from the National Oceanic and Atmospheric Administration (NOAA-AOML).

PERSONAL DETAILS

Professional Address: NOAA Atlantic Oceanographic Meteorological Laboratory
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PROFESSIONAL EXPERIENCE

NOAA Atlantic Oceanographic Meteorological Laboratory *(2011 - Present)*
Cooperative Institute for Marine and Atmospheric Studies - CIMAS
University of Miami

▷ **Title:** Research Associate III

Job Description: Carry out research and provide science and technical support to studies and projects focused on the role that the oceans play on climate change, extreme weather events, and ecosystems. Specific job duties include:

- Provide science and technical support to the observational efforts within NOAA maintaining the Global Ocean Observing System (GOOS);
- Pilot Autonomous Underwater Vehicles (AUVs) under hurricane wind conditions to collect ocean data in support of hurricane studies and forecasts;
- Operate the Mandatory Ship Reporting System (MSR) in collaboration with NOAA Fisheries and the United States Coast Guard;
- Lead or collaborate with science publications aiming to help improve the skill of hurricane intensity forecasts;
- Lead or collaborate with the analysis and publication of science results on the role that the ocean plays on climate, extreme weather events, and ecosystems;

- Maintain real-time computation and distribution of ocean indicators in support of bluefin tuna *(Thunnus thynnus)* stock management and assessment;
- Maintain real-time computation and distribution of ocean indices and indicators in support of climate and extreme weather research;
- Participate in oceanographic cruises in support of the GOOS;

Admiral Paulo Moreira Marine Research Institute - IEAPM *(2010 - 2011)*
Brazilian Navy

▷ **Title:** Oceanographer *(June 2010 - May 2011)*

Job Description: Provide science and technical support to the Oceanographic Modeling and Observation Network (REMO, http://www.rederemo.org/html/index.php/ towards the development of an oceanic forecast system for Brazil. Specific job duties included:

- Implement numerical ocean models for the coast of Brazil;
- Analyze oceanographic data derived from satellites and from in situ instruments;
- Assisting scientists on the publication of peer-reviewed scientific papers;
- Participate in oceanographic cruises;

Federal University of Bahia - UFBA *(2006 - 2010)*

▷ Trainee *(December 2009 - May 2010)*
Advisors: Dr. Mauro Cirano, Dr. Carlos Lentini, & Dr. Leandro Calado
Research Group: The Brazilian Ocean Modeling and Observation Network - REMO

▷ Trainee *(October 2008 - November 2009)*
Advisor: Dr. Carlos Lentini
Research Group: Tropical Oceanography Research Group - GOAT

▷ Trainee *(June 2006 - September 2008)*
Advisor: Dr. Ruy Kikuchi
Research Group: Coral Reefs and Global Changes Research Laboratory - RECOR/UFBA

RESEARCH INTEREST

◇ Ocean dynamics and variability, and its relationship to climate change, weather events, and ecossystem dynamics

Formal Education

2016: MSc in Meteorology and Physical Oceanography,
Rosenstiel School of Marine and Atmospheric Science
University of Miami, United States of America

2010: BSc in Oceanography,
Federal University of Bahia - UFBA, Brazil

Additional Education

2015: Seagliders Underwater Gliders piloting training,
NOAA/AOML (60 hours)

2011: GEOSOFT Oasis Montaj (30 hours)

2009: Amazônia Azul: A experiência embarcada,
Federal University of Rio Grande (120 hours)

2007: Continuing Education on Coastal Management,
Federal University of Bahia, Brazil (34 hours)

2004: Foreign Language: English
Brazil-United States Cultural Association - ACBEU
Salvador, BA, Brazil

Awards

- ✠ NOAA Team Member of the Month, February 2015
- ✠ Special Recognition, NOAA/AOML, 2014
- ✠ Admiral Franco Award, Brazilian Navy, 2009
- ✠ Outstanding student research project - Earth Sciences, Federal University of Bahia, 2007

Knowledge

Languages: Portuguese (native language), English (fluent), and Spanish (understands)

Programming Languages: MATLAB® (advanced), SHELL (advanced), FORTRAN (intermediate), and IDL (basic).

OS: LINUX/UNIX environment (advanced), Mac operating system (advanced), Windows environment (advanced)

Oceanographic Equipment: Underwater Gliders (advanced), CTD (advanced), XBT (advanced), ADCP (advanced), and Argo (intermediate)

Numerical Ocean Models: Regional Ocean Modeling System (advanced), MERCATOR products (intermediate)

Software: SeaDAS (advanced), GMT (advanced), ArcGIS 9.x (intermediate), GEOSoft (intermediate), ENVI (intermediate)

Data Management: MySQL (intermediate), PostgreSQL (intermediate)

Web-Design: PHP (advanced), HTML (advanced)

*skill level is included in the parenthesis

ACADEMIC PUBLICATIONS

Published / Accepted

Domingues, R., M. Baringer, G. Goni (2016), Remote sources for year-to-year changes in the seasonality of the Florida Current transport. *Journal of Geophysical Research - Oceans, doi:10.1002/2016JC012070*.

Domingues, R., G. Goni, F. Bringas, B. Muhling, D. Lindo, J. Walter (2016), Variability of preferred environmental conditions for Atlantic bluefin tuna (*Thunnus thynnus*) larvae in the Gulf of Mexico during 1993-2011. *Fisheries Oceanography, 25(3), 320-336*.

Domingues, R., G. Goni, F. Bringas, S.-K. Lee, H.-S. Kim, G. Halliwell, J. Dong, J. Morell, and L. Pomales (2015), Upper ocean response to Hurricane Gonzalo (2014): Salinity effects revealed by targeted and sustained underwater glider observations, *Geophys. Res. Lett., 42, doi:10.1002/2015GL065378.*

Domingues, R., G. Goni, S. Swart, and S. Dong (2014), Wind forced variability of the Antarctic Circumpolar Current south of Africa between 1993-2010, *J. Geophys. Res. Oceans, 119, doi:10.1002/2013JC008908*.

Codato, G., L. Calado, N. Martins, W. Watanabe, **R. Domingues** , and S. Jesus (2012), Acoustic prediction using a feature-oriented regional modeling system and acoustic inversion, *Proceedings of Meetings on Acoustics, Vol. 17, p. 070052*.

Oliveira, E., L. Calado, W. Watanabe, **R. Domingues** (2011), Detecção de Feições Oceanográficas a partir de Dados Orbitais: Validação de Modelos Numéricos, *A Ressurgência (ISSN:1982-2790), v. 5, p. 18-20*.

Calado, L., **R. Domingues** , W. Watanabe, G. Serrato, E. Oliveira, L. Nascimento (2012), Desenvolvimento da Técnica de previsão da Corrente do Brasil na região sudeste. *A Ressurgência (ISSN:1982-2790), v. 6, p. 40-45*.

In preparation / under review

Dong, J., **R. Domingues**, G. Goni, G. Halliwell, S-K Lee, Y-H Sook, J. Morell, L. Pomales, F. Bringas, Impact of underwater glider on Hurricane Gonzalo (2014) forecast. *Manuscript in preparation*.

Calado, L., **R. Domingues**, A. Gangopadhyay, W. Watanabe, Mushroom-like eddy dipoles in the Brazil Current: genesis and dynamics diagnostics using a regional ocean model. *Currently under review at Ocean Dynamics*.

OUTREACH PUBLICATIONS - CONTRIBUTION

(August 27, 2012) Isaac Follows a Familiar Path, but With Less Intensity, ***The New York Times***. Permanent URL: http://www.nytimes.com/interactive/2012/08/28/us/isaac-follows-a-familiar-path-but-with-less-intensity.html

RESEARCH PROJECTS

2016 - Present: Fish Stock Assessment From Satellite Observations - Bluefin tuna Monitoring (NOAA/AOML, NOAA/SEFSC)

Goal: an ocean indicator, the BFT_Index, was implemented and is currently computed on a daily basis for the Gulf of Mexico during the spring months, which is the spawning season for Atlantic bluefin tuna in the Gulf of Mexico. Daily maps of BFT_Index are distributed through the PhOD webpage in support of bluefin tuna stock assessment operations and management activities carried out by the NOAA Southeast Fisheries Science Center.

Website: `http://www.aoml.noaa.gov/phod/research/ecosystems/fisheries/bft_maps.php`

2014 - Present: Hurricane Underwater Gliders - Sustained and Targeted Ocean Observations by Gliders (NOAA/AOML)

Goal: help improve seasonal and intensity forecasts of Hurricanes though the collection of targeted ocean observations using underwater gliders under hurricane conditions in the Caribbean Sea and Tropical North Atlantic.

Website: `http://www.aoml.noaa.gov/phod/gliders`

2014 - Present: Predicting the Potential Impact of Climate Change on the Intra-Americas Sea Using Downscaled Climate Models

(NOAA/AOML)

Goal: quantify potential impacts of climate change on bluefin tuna spawning habitat in the Gulf of Mexico.

2013 - Present: Mandatory Ship Reporting System 2.0 (NOAA/AOML)

Goal: implement and maintain the MSR 2.0, which is jointly operated by the United States Coast Guard and the National Marine Fisheries Service and is designed to aid in the reduction of ship collisions with North Atlantic right whales.

Websites: - `http://www.nmfs.noaa.gov/pr/shipstrike/msr.htm`

- `https://www.rightwhalesmsr.aoml.noaa.gov`

2011 - Present: The XBT Network (NOAA/AOML)

Goal: improve the state of the ocean observing system by maintaining consistent observations along transects across all ocean basins, where eXpendable BathyThermographs (XBTs) are used to collect temperature observations of the upper 1km of the ocean.

Website: `http://www.aoml.noaa.gov/phod/goos/xbt_network/`

2011 - Present: Long Term Time Series of Surface Currents (NOAA/AOML)

Goal: satellite-based monitoring of the spatial and temporal variability of key surface currents.

Website: `http://www.aoml.noaa.gov/phod/altimetry/cvar/index.php`

2010 - 2011: Project DetecFeicoes (IEAPM)

Goal: implementation of a operational methodology for detecting and tracking mesoscale ocean features at the southeast coast of Brazil using satellite data.

2010 - 2011: Ocean Acustic Exploration (IEAPM)

Goal: enhance the international colaboration between Brasil, the European Union, and Canada in the field of ocean monitoring through acustic methods and marine technologies.

2009 - 2011: Oceanographic Modeling and Observation Network (UFBA/IEAPM)

Goal: implement an operational oceanic forecast system based on numerical models and satellite data.

Website: `http://www.rederemo.org/html/index.php/welcome`

PRESENTATIONS IN EVENTS

2016 (oral presentations) - title: 1) NOAA/AOML - CARICOOS Hurricane Underwater Glider Operations; 2) Hurricane Gonzalo (2014): upper-ocean processes and hurricane intensity forecast using hurricane underwater gliders data; 7th EGO Conference on Autonomous Ocean Gliders and their Applications, September 26-29, 2016, Southampton, UK.

2016 (poster) - **R. Domingues**, G. Goni, et al. Upper ocean response to Hurricane Gonzalo (2014): Salinity effects revealed by targeted and sustained underwater glider observations. Ocean Sciences Meeting, February 20-26, 2016, New Orleans, USA.

2015 (oral presentation) - **R. Domingues**, G. Goni, Sustained and Targeted Ocean Observations for Improving Atlantic Tropical Cyclone Intensity and Hurricane Seasonal Forecasts. US CLIVAR Observing & Modeling Climate Variability in the Intra-Americas Seas & Impacts on the Continental Americas & the Caribbean, Virtual Workshop, September 9-11, 2015.

`https://usclivar.org/meetings/2015-iasclip-virtual-workshop`

2014 (oral presentation) - **R. Domingues**, G. Goni, F. Bringas, B. Muhling, D. Lindo, The variability of preferred spawning grounds for Bluefin tuna in the Gulf of Mexico during 1993-2011. NOAA AOML-SEFSC Workshop, May 29, 2014, Miami, USA.

2010 (oral presentation) - Watanabe, W., **R. Domingues**, L. Calado, L. Barreira, On the influence of the upwelling front on the acoustics propagation. Submarine Acoustics Technology Meeting (IX ETAS), Arraial do Cabo, Brazil

2010 (poster) - **Domingues, R.**, C. Lentini, J. Miranda, M. Cirano, and L. Calado, Investigating the Brazil Current meso-scale activity through the application of the Chaotic Theory. AGU, The Meeting of Sciences. Foz do Iguacu, Brazil

2009 (oral presentation) - **Domingues, R.**, C. Lentini, J. Miranda, An investigation about the Lagrangian and chaotic behavior of the Brazil Current near Cabo Frio using MODIS thermal images and complexes systems. Waves, Tides and Satellite Oceanography Symposium, Arraial do Cabo, Brazil

2009 (poster) - Lentini, C., J. Servain, M. Araujo, M. Silva, L. Nascimento, **R. Domingues**, and M. Cintra, How well work the Mercator products in the Southwestern Tropical Atlantic?; Project TRANSAT conference, Toulouse, France

2009 (poster) - Lisboa, D., C. Lentini, and **R. Domingues**, Generation of Hot Spots and Degree Heating Weeks maps to identify regions of coral bleaching in the Southwestern Tropical Atlantic; Brazilian Remote Sensing Symposium, Natal, Brazil

TECHNICAL WORK

February, 2011 - Development of "METEO processing" MATLAB® toolbox, designed to process meteorological data collected by Brazilian stations. **Client:** Federal University of Bahia

June, 2010 - Upgrade in the "ADCP ProcED" MATLAB® toolbox. **Client:** Federal University of Bahia

Reference: Genz, Fernando, Cirano, Mauro, and Lessa, Guilherme Camargo. (2010). ProcED: a MATLAB® package for processing ADCP estuarine data. Revista Brasileira de Geofsica, 28(2), 183-192.

Link to the package: `http://www.mcirano.ufba.br/ftp/pub/matlab/proced/`

January, 2010 - Development of the "ADCP Flowquest processing" MATLAB® toolbox, designed to process ADCP data. **Client:** Belov Engenharia Ltda

October, 2009 - Monitoring the Paraguacu River tidal cycle using ADCP and CTD measurements. **Client:** Federal University of Bahia

EMBARKED EXPERIENCE

January, 2016 - Location: North Atlantic Ocean from Miami, USA, to Valencia, Spain; **Cruise Name:** January 2016 AX07 XBT transect; **Duration:** 16 days; **Institution:** National Oceanic and Atmospheric Administration

November, 2015 - Location: Florida Straits; **Cruise Name:** Florida Current 27°N Cruise **Duration:** 2 days; **Institution:** National Oceanic and Atmospheric Administration, **Vessel:** R/V Walton Smith

February, 2015 - Location: North Atlantic Ocean from Miami, USA, to Valencia, Spain; **Cruise Name:** February 2015 AX07 XBT transect; **Duration:** 13 days; **Institution:** National Oceanic and Atmospheric Administration

March, 2014 - Location: North Atlantic Ocean from Barcelona, Spain, to Fort Lauderdale, USA; **Cruise Name:** March 2014 AX07 XBT transect; **Duration:** 13 days; **Institution:** National Oceanic and Atmospheric Administration

August, 2013 - Location: North Atlantic Ocean from Barcelona, Spain, to Fort Lauderdale, USA; **Cruise Name:** August 2013 AX07 XBT transect; **Duration:** 13 days; **Institution:** National Oceanic and Atmospheric Administration

June, 2013 - Location: North Atlantic Ocean from Newark, USA, to San Juan, Puerto Rico; **Cruise Name:** June 2013 AX10 XBT transect; **Duration:** 5 days; **Institution:** National Oceanic and Atmospheric Administration

February, 2013 - Location: North Atlantic Ocean from Newark, USA, to San Juan, Puerto Rico; **Cruise Name:** February 2013 AX10 XBT transect; **Duration:** 5 days; **Institution:** National Oceanic and Atmospheric Administration

December, 2012 - Location: North Atlantic Ocean from Fort Lauderdale, USA, to Cagliari, Italy; **Cruise Name:** December 2012 AX07 XBT transect; **Duration:** 13 days; **Institution:** National Oceanic and Atmospheric Administration

July, 2012 - Location: North Atlantic Ocean from Fort Lauderdale, USA, to Cagliari, Italy; **Cruise Name:** July 2012 AX07 XBT transect; **Duration:** 13 days; **Institution:** National Oceanic and Atmospheric Administration

March, 2012 - Location: North Atlantic Ocean from Newark, USA, to San Juan, Puerto Rico; **Cruise Name:** March 2012 AX10 XBT transect; **Duration:** 5 days; **Institution:** National Oceanic and Atmospheric Administration

December, 2011 - Location: North Atlantic Ocean from Newark, USA, to San Juan, Puerto Rico; **Cruise Name:** December 2011 AX10 XBT transect; **Duration:** 5 days; **Institution:** National Oceanic and Atmospheric Administration

October, 2010 - Location: Rio de Janeiro; **Cruise Name:** Ocean Acoustics Exploration experiment; **Duration:** 4 days; **Institution:** Admiral Paulo Moreira Marine Research Institute, Brazilian Navy, **Vessel:** R/V Aspirante Moura

October, 2009 - Location: Paraguaç estuary; **Description:** ADCP and CTD data collection; **Duration:** 4 days; **Institution:** Federal University of Bahia

June, 2009 - Location: South Atlantic; **Cruise Name:** Amazonia Azul, leg 23; **Duration:** 5 days; **Institution:** Federal University of Rio Grande **Vessel:** R/V Atlantico Sul

2006 to 2008 - Location: Bahia, Brazil; **Description:** Scientific dives as part of the activies by the Coral Reef and Global Change Research Laboratory - RECOR; **Duration:** 300 hours; **Institution:** Federal University of Bahia.